In the centrifuge acceleration technique, pellets are loaded onto a spinning arbor that accelerates them and then slings them off its outer edge at high speeds. Because the size and speed of the pellets can be controlled with great accuracy, the stream of pellets produced can be precisely tailored to create the desired effect.

The process resembles sandblasting, but the accelerated pellets travel at much higher speeds than the particles used in sandblasting (up to 1000 meters per second, compared to about 100 meters per second), and because they are all moving at the same speed, there is much less chance of damaging the material than with conventional processes.

Another advantage is that the pellets simply evaporate into the air. Both carbon dioxide and argon are naturally present in the air, so neither represents an environmental burden. The material removed from the sur face can be collected by conventional "vacuum cleaner" systems.

Applications include the broad area of cleaning materials, including removal of paint, oxide layers, radio -active contaminants, and grease. Conventional means of removing these substances often require the use of solvents that can adversely affect the environment. When surfaces are cleaned with cryogenic pellets, no solvents are necessary.

Argon is especially suitable for use in removing radioactive contaminants because it is an inert gas and does not react chemically with many materials. Thus, the waste disposal problem is limited to the material actually removed—there is no added volume from the removal technique.

Cryogenic pellets are now being tested for removal of paint from Air Force aircraft by Warner Robins Air Logistics Center, as shown below. Other applications of this technique include the use of high-speed pellets to simulate harsh environments. Satellites, rockets, and space platforms undergo collisions with "space debris"—macroscopic and microscopic meteorites, as well as material left behind by earlier space voyages. These collisions can be simu lated in the laboratory by bombarding sample materials with pellets. More generally, studies of erosion and sur face physics can be advanced by use of high-speed pellet technology.